

Letters to the Editor . . .

RECOVERY FROM A SUBCUTANEOUS OVERDOSE OF MORPHINE BY PROMPT INCISION AND DRAINAGE

Some time ago in this journal Dr. P. J. Hanzlik described a case in which "Recovery from a Surely Fatal Dose of Epinephrine" had been accomplished by the persistent use of various nitrites as peripheral vasodilators. These known mutual antagonists of epinephrine resulted in recovery in about four hours of a child who had received more than twice the known fatal dose, because accidentally 20 mgm. of epinephrine (0.2 cc. of a 10 per cent spray-solution), was injected subcutaneously.

Surely no thinking physician ever injects a drug of any kind without the disquieting thought, "What if the patient will not tolerate this?" If the intravenous route be used there is no alternative but to rely on pharmacological antagonists, and the physician should be sure that appropriate ones are at hand.

If the injection was subcutaneous, however, as in the case described by Professor Hanzlik, can the drug be retrieved by prompt incision and drainage? There is a general agreement that when the fangs of a rattlesnake inject venom subcutaneously that the wound should be "scarified." Is the likelihood of recovering toxin or drug injected subcutaneously sufficiently great to warrant the attempt to sponge it out after incision and drainage? The following case indicates the answer is "Yes."

Despite the numerous obvious advantages of the metric system, the fact remains that an accidental shift of the decimal point will mean that the patient gets ten times too little, or worse, ten times too much. Precisely this sort of accident occurred in Vienna to a 28-year-old male with renal colic who had been assigned to me as a physician for study. The student nurse injected 16 centigrams (0.160 gram) of morphine sulfate instead of 16 milligrams (0.016 gram) as ordered. (To prevent this sort of mistake the last two editions of the U. S. Pharmacopeia have recommended the practice of expressing any dose under 0.1 (1/10) gram as so many milligrams. Thus the usual 1/4 grain dose of morphine sulfate is written as 16 mg., and not 0.016 gm.)

After making the subcutaneous injection of 160 mg., the young nurse decided it strange that she should have had to use ten tablets instead of one, and informed the resident physician. He promptly made a small incision at the point of injection and sponged out the injected solution. The result was so successful that the patient did not even feel drowsy from the effect of the morphine.

It is interesting to speculate whether in the case described by Hanzlik the overdose of epinephrine (a

drug slowly absorbed because of its inherent vasoconstrictive powers) might not have been similarly retrieved.

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STANDARDS FOR SAFE USE OF CURARE

At the American Medical Association convention in San Francisco in July, 1947, a paper on "The Physiologic Effects of Curare and Its Use as an Adjunct to Anesthesia" was presented which has since been published in one of the surgical journals.* In this report the advantages of the use of curare for muscular relaxation during surgery were brought out. However, particular emphasis was placed upon the fact that while curare is a safe drug when in the hands of physicians acquainted with its action, it is an extremely dangerous drug when administered by those ill-trained in its use.

The authors of this paper feared that with curare, as has been the case with other new drugs, deaths following its use would be blamed on the drug itself rather than on the improper use of the drug. Therefore, the paper was published in a surgical journal rather than in an anesthesiological journal for the specific purpose of impressing surgeons with the danger to their patients from the administration of curare by unqualified persons. Certain standards were set by which surgeons could judge the qualifications of anesthetists for administering curare. Briefly, these were:

1. The anesthetist must have a thorough knowledge of respiratory physiology, both normal and abnormal. He must be able to recognize respiratory depression when he sees it and know how to combat its ill effects, and especially he must learn the criteria by which an anesthetist determines when the patient can safely be allowed to breathe without help.
2. The anesthetist must be able to give good inhalation anesthesia. He must know both the scope and the limitations of the available anesthetic agents and also of the sedative, hypnotic, and basal narcotic drugs he may use in conjunction with curare.
3. The anesthetist must learn and thoroughly understand the action of curare without anesthesia. The ideal way to do this is to administer the drug to unanesthetized dogs.

While no specific statement to the effect was made, the inference was clear that in the authors' opinion if curare was used in anesthesia by persons who did not have the above qualifications, the patients would

*The Physiologic Effects of Curare and Its Use as an Adjunct to Anesthesia, P. Harroun, M.D., F. E. Beckert, M.D., and C. W. Fisher, M.D., Surg., Gynec. & Obst., 84:491-498 (April), 1947.

suffer. This prophecy has been amply and grimly fulfilled. In the period since the paper was presented, seven deaths from curare in this area have been reported to the authors, the last two occurring on the same day only recently. There have doubtless been many more; such occurrences are not of the type publicized by any hospital.

The first five deaths occurred during the first year after the paper was presented. The anesthetists were all physicians. The inhalation agents used in conjunction with curare were nitrous oxide and cyclopropane. After these five deaths there was a break of six months during which no deaths were reported. Apparently physician anesthetists were learning (the hard way) that there is more to caring for a patient who has received curare than throwing him into bed and leaving him to Mother Nature. The two most recent deaths both followed the use of curare by nurse anesthetists. In both instances the patients received pentothal; in one case nitrous oxide was also used. It is feared that surgeons who have become acquainted with the relaxation produced by curare from its use on their patients by physician anesthetists, are beginning to request, or at least condone, its use by technicians.

A typical case history of a death from curare is as follows:

A man of 40 is sent to surgery for an elective cholecystectomy. He is put to sleep with pentothal,

and cyclopropane and oxygen are administered. When the peritoneum is opened the patient is insufficiently relaxed. Either with or without the surgeon's knowledge, curare is administered, and immediately the relaxation becomes adequate. When the gallbladder has been removed, more curare is given to facilitate closure of the peritoneum. At the end of the operation the patient is in good condition, well oxygenated, breathing spontaneously, with a good pulse and blood pressure. He is returned to bed. Half an hour later he is found dead. Post-mortem examination shows atelectasis of both lungs.

We hope this communication will impress upon physicians in this area the fact that such deaths are entirely preventable and must be blamed not upon curare, but upon the ignorance of those administering it. In the two institutions in this immediate vicinity where curare has been used most extensively in the last two years there have been nearly one thousand administrations of curare to anesthetized patients without a single death which could be attributed to curare. As was stated in the original paper, the safe use of curare depends entirely upon the knowledge of the anesthetist administering it. A surgeon who allows its use upon his patients by unqualified persons has only himself to blame for resulting deaths.

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